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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Mark A. Clarner
Serial No. : 10/688,320
Filed : October 15, 2003
Title : MULTIPLE-CROOK MALE TOUCH FASTENER ELEMENTS

Art Unit : 3677
Examiner : Robert J. Sandy

MAIL STOP Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Applicant has amended the following sections of the appeal brief:

(3) Status of Claims:

This section was amended to include the of status of claims 4, 18-23, 29, 38-44, 56-59, 69-75 as cancelled.

(5) Summary of Claimed Subject Matter:

This section was amended to include separate mappings of independent claims 1, 27, 48, and 61 to exemplary figures and/or specification page(s) and line numbers.

The amended appeal brief is enclosed herein.

Enclosed is a \$120.00 check for the Petition for Extension of Time fee under 37 C.F.R. 1.136. The Appeal Brief fee was paid with Applicants April 7, 2006 Pre-Appeal Request for Review. Please apply any charges or credits to deposit account 06-1050, referencing Attorney Docket No. 05918-340001.

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

October 11, 2006
Date of Deposit

Signature

Susan Lanney

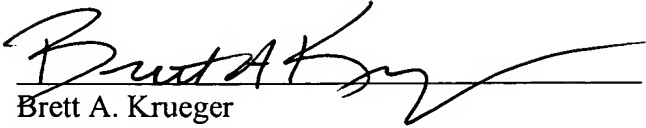
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Applicant : Mark A. Clarner
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Attorney Docket No.: 05918-340001 / VGCP No. 6020

Respectfully submitted,

Date: 10/11/2006


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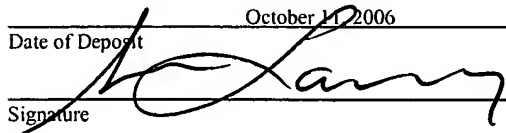
AMENDED BRIEF ON APPEAL

Applicant is appealing the final rejection of claims 1-3, 5-17, 24-28, 30-37, 45-55, 60-68 and 76-79 in the Final Office Action dated December 7, 2005. Applicant respectfully requests that the rejections be reversed.

A Pre-Appeal Request for Review, along with a Notice of Appeal and the required fee was filed April 7, 2006. The Panel's decision was mailed May 10, 2006 maintaining the rejection of the above-noted claims.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Applicant : Mark A. Clarner
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(1) REAL PARTY IN INTEREST

The real party of interest is Velcro Industries B.V., Curacao, NL, the assignee.

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(2) RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences.

(3) STATUS OF CLAIMS

Claims 1-3, 5-17, 24-28, 30-37, 45-55, 60-68 and 76-79 are pending; claims 1, 27, 48 and 61 being in independent form.¹ Claims 4, 18-23, 29, 38-44, 56-59, 69-75 are cancelled.

¹ A listing of pending claims is attached hereto.

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(4) STATUS OF AMENDMENTS

All amendments have been entered.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

Claims 1-3, 5-17, 24-28, 30-37, 45-55, 60-68 and 76-79 are pending; claims 1, 27, 48 and 61 being in independent form.

All claims are directed to fasteners, such as hook-and-loop fasteners. The claimed fasteners include multi-headed male touch fastener elements (for example, palm-tree shaped elements) with stems formed integrally with an interconnecting base.

Referring to FIGS. 3 and 7 of Applicant's Specification (reproduced below), it has been discovered that certain ratios of fastener element dimensions can give multi-headed fastener elements particularly useful performance properties when mated with loop materials. In particular, many aspects of Applicant's inventions feature ratios $G/A < 0.6$, $J/G > 0.7$, $L/G > 2.5$, a mold release factor (MRF) < 0.1 , or combinations of these ratios.

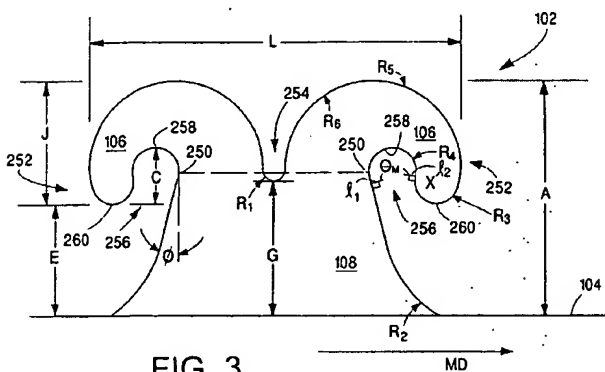
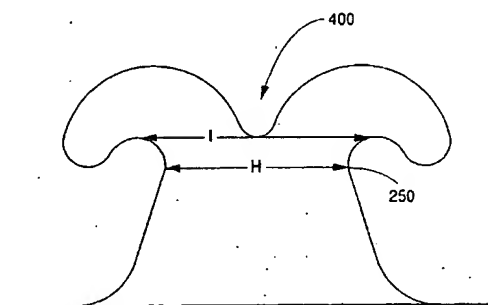


FIG. 3

$$MRF = 0$$

From U.S.S.N. 10/688,320



PRIOR ART
FIG. 7

$$MRF >> 0.1$$

Independent claims 1, 27, 48 and 61 each feature a touch fastener component having a sheet-form base (e.g. 104, Fig. 3; p. 9, line 25 through p. 10, line 20) and an array of fastener elements (e.g. 102, Figs. 1-3; p. 9, lines 6 through p. 10, line 20). Each fastener element (e.g. 102, Figs. 1-3; p. 9, lines 6 through p. 10, line 20) includes a stem (e.g. 108, Fig. 3; p. 9, line 25 through p. 10, line 20) extending outwardly from and integrally with the sheet-form base (e.g. 104, Fig. 3; p. 9, line 25 through p. 10, line 20) and two heads (e.g. 106, Fig. 3; p. 9, line 25 through p. 10, line 20) extending in essentially opposite directions in an engagement plane from a distal end (e.g. 250, Fig. 3; p. 10, lines 2-7) of the stem (e.g. 108, Fig. 3; p. 9, line 25 through p. 10, line 20) to corresponding tips (e.g. 260, Fig. 3; p. 10, lines 8-20). Each head (e.g. 106, Fig. 3;

p. 9, line 25 through p. 10, line 20) has a lower surface forming a crook (e.g. 256, Fig. 3; p. 9, line 25 through p. 10, line 7) for retaining loops and each fastener element (e.g. 102, Figs. 1-3; p. 9, lines 6 through p. 10, line 20) has an upper surface that defines a well (e.g. 254, Fig. 3; p. 9, line 25 through p. 10, line 7) between the heads (e.g. 106, Fig. 3; p. 9, line 25 through p. 10, line 20).

Claim 1 requires a height (G) (e.g. Fig. 3; p. 10, lines 18-20) of a lowermost extent of the well (e.g. 254, Fig. 3; p. 9, line 25 through p. 10, line 7) that is less than 60 percent of an overall height (A) (e.g. Fig. 3; p. 10, lines 8-9) of the fastener element (e.g. 102, Figs. 1-3; p. 9, lines 6 through p. 10, line 20) (i.e., $G/A < 0.6$). Applicant has discovered that a G/A ratio of less than 0.6 provides fastener elements that are easier to de-mold from cavities of mold rolls, providing for improved manufacturability at a reduced cost. At the same time, Applicant has also found that fastener elements having such ratios provide for improved fastening performance when mating with, e.g., low loft loops, and also provide for enhanced product cycle life. *See e.g.* Fig. 3, p. 10, lines 8-20 and p. 11, lines 16-22.

Claim 27 requires a ratio of an overall height (J) (e.g. Fig. 3; p. 10, lines 15-20) of at least one of the heads (e.g. 106, Fig. 3; p. 9, line 25 through p. 10, line 20) to a height (G) (e.g. Fig. 3; p. 10, lines 18-20) of a lowermost extent of the well (e.g. 254, Fig. 3; p. 9, line 25 through p. 10, line 7) that is greater than 0.7 (i.e., $J/G > 0.7$). Applicant has discovered that a ratio of an overall height (J) of at least one of the heads to a height (G) of a lowermost extent of the well that is greater than 0.7 can be helpful in improving fastening performance when mated with low loft loops, resulting in particularly good hook strength for the overall thickness of the fastener product. *See e.g.* Fig. 3, p. 10, lines 8-20 and p. 11, lines 16-23.

Claim 48 requires a ratio of an overall length (L) (e.g. Fig. 3; p. 10, lines 21-22) of the fastener element (e.g. 102, Figs. 1-3; p. 9, lines 6-12 and 25 through p. 10, line 20) to a height (G) (e.g. Fig. 3; p. 10, lines 18-20) of a lowermost extent of the well (e.g. 254, Fig. 3; p. 9, line 25 through p. 10, line 7) that is greater than 2.5 (i.e., $L/G > 2.5$). Applicant has discovered that a ratio of an overall length (L) of the fastener element to a height (G) of a lowermost extent of the well that is greater than 2.5 results in particularly good hook strength for the overall thickness of the fastener product, and can improve manufacturability. *See e.g.* Fig. 3, p. 10, lines 8-22 and p. 11, lines 16-25.

Claim 61 requires that each fastener element (e.g. 102, Figs. 1-3; p. 9, lines 6 through p. 10, line 20) have a mold release factor (e.g. p. 14, lines 5-16) ($MRF = (I-H)/H$) of less than 0.1 ($MRF < 0.1$). Applicant has discovered that a mold release factor (MRF) of less than 0.1 can provide a low degree of mold lock, which has been found to improve manufacturability, e.g., by allowing for easier demolding of the fastener elements from cavities of mold rolls. *See e.g.* Fig. 3, p. 14, lines 5-16 and p. 14, lines 22-28.

(6) GROUNDS OF REJECTION

(A) Claims 1-3, 6-9, 11-13, 15-17, 25-28, 31-34, 36, 37, 46-49, 51-55, 61-63, 65-68 and 76-79 have been rejected under 35 U.S.C. §102(b) as anticipated by Akeno, U.S. Patent No. 5,781,969 ("Akeno").

(B) Claims 5, 14, 24, 30, 45, 50, 60 and 64 have been rejected under 35 U.S.C. §103(a) as obvious over Akeno.

(C) Claims 24, 45 and 60 have been rejected under 35 U.S.C. §103(a) as obvious over Akeno in view of Romanko, U.S. Patent No. 6,484,371 ("Romanko").

(D) Claims 10 and 35 have been rejected under 35 U.S.C. §103(a) as obvious over Akeno in view of Takizawa, U.S. Patent No. 5,537,720 ("Takizawa").

(7) ARGUMENT

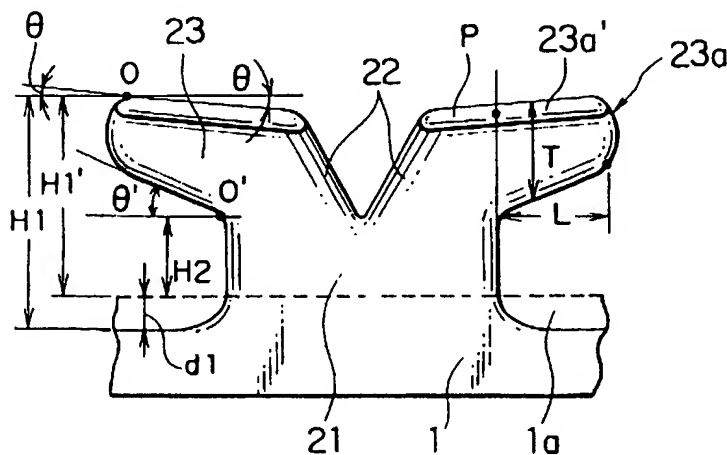
Applicant will first address the novelty rejection of claims 1-3, 6-9, 11-13, 15-17, 25-28, 31-34, 36, 37, 46-49, 51-55, 61-63, 65-68 and 76-79 based on Akeno (A), followed by the obviousness rejection of claims 5, 14, 24, 30, 45, 50, 60 and 64 based on Akeno (B). Applicant will then address the obviousness rejection of claims 24, 45 and 60 based on Akeno in view of Romanko (C), followed by the obviousness rejection of claims 10 and 35 based on Akeno in view of Takizawa (D).

Applicant submits that all claim rejections result from an improper scaling of unscaled patent drawings and/or improper inferences derived from such drawings, which is clearly misguided in view of established case law. Applicant requests that all rejections be reversed.

(A) NO CLAIM IS ANTICIPATED BY AKENO, INCLUDING CLAIMS 1-3, 6-9, 11-13, 15-17, 25-28, 31-34, 36, 37, 46-49, 51-55, 61-63, 65-68 AND 76-79.

Claim 1 requires, in pertinent part, a height (G) of a lowermost extent of the well that is less than 60 percent of an overall height (A) of the fastener element (i.e., $G/A < 0.6$). On page 4 of the Office Action dated December 7, 2005, the Examiner reproduces FIG. 4B (shown below) of the Akeno disclosure and contends that the drawing shows a height of a lowermost extent of the well that is less than 60 percent of an overall height of the fastener element.

FIG. 4B



From Akeno

Apparently, the Examiner has come to this conclusion by simply extending the line that passes through O' and that is parallel to the base of the fastener at a height H2 across the stem to the bottom of the "V" between the heads. In other words, the Examiner has equated H2 with a height of the lowermost extent of the well. This is improper because there is no disclosure in Akeno that places the "V" in the location suggested by the Examiner. Applicant submits that a rejection based on relative measurements taken from the figures is improper absent some indication that the drawings are to scale. Akeno provides no such indication, nor does he provide any indication of the location of the well with respect to the location of other features of the fastener element such as O'. In fact, the only disclosure in Akeno regarding the "V" between the heads is found at column 10, line 62 through column 11 line 6. Here Akeno states that it can be located in a desired position.

The Court of Appeals for the Federal Circuit has dealt with a similar situation in *Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc.*² In *Hockerson*, the issue was whether patent drawings disclosed a groove and fins in a shoe sole, with the width of the groove being "less than the combined width of the fins."³ The Appellant in *Hockerson* argued that the figures depicted a groove that is wider than the fins, but the Court found that, because the patent did not indicate that the drawings were drawn to scale, the Appellant's argument rested on "an inference drawn from certain figures about the quantitative relationship between the respective widths of the groove and fins."⁴ The Court held that "[u]nder our precedent...it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue."⁵

Under the same legal precedent on which the Court relied in deciding *Hockerson*, the figures of the Akeno patent cannot be relied upon to show particular ratios with respect to any ratio or measurement that requires the height or location of the bottom of the "V" in Akeno.

Additional support for Applicant's position can be found in *Olson*,⁶ where the Appellant challenged the decision of the Board of Patent Appeals and Interferences sustaining a rejection of

² 222 F.3d 951 (Fed. Cir. 2000).

³ 222 F.3d at 954-56.

⁴ *Id.*

⁵ *Id.*

⁶ 212 F.2d 590 (CCPA 1954).

claims amended during prosecution. In *Olson*, the Appellant amended his claims to include a limitation regarding the relative spacing between certain elements in the claimed invention.⁷ The claims were rejected on the ground that the spacing limitation was not supported by the original disclosure.⁸ The Appellant argued that the original drawings disclosed the claimed spacing proportions.⁹ In rejecting this argument the Court held, “[i]t is well known that Patent Office Drawings are not normally drawn to scale, with the dimensions and sizes of parts shown to exact measurements as are shop drawings.”¹⁰ Applicant respectfully submits that claim 1, and all claims that depend therefrom, are novel over Akeno.

Claim 27 requires, in pertinent part, a ratio of an overall height (J) of at least one of the heads to a height (G) of a lowermost extent of the well that is greater than 0.7 (i.e., $J/G > 0.7$). Here, too, the Examiner’s conclusion of anticipation by Akeno is based on improper scaling of patent drawings to ascertain the location of the bottom of the “V” of Akeno. Applicant respectfully submits that claim 27, and all claims that depend therefrom, are novel over Akeno.

Claim 48 requires, in pertinent part, a ratio of an overall length (L) of the fastener element to a height (G) of a lowermost extent of the well that is greater than 2.5 (i.e., $L/G > 2.5$). Again, the Examiner’s conclusion is based solely on improper scaling of patent drawings in contradiction of established case law. Applicant respectfully submits that claim 48, and all claims that depend therefrom, are novel over Akeno.

Claim 61 requires, in pertinent part, that each fastener element have a mold release factor that is less than 0.1 (i.e., $MRF < 0.1$). Again, the Examiner has *inferred* undisclosed information from the drawings. Since the location of the bottom of Akeno’s “V” is *indeterminate*, it is not possible to find the maximum solid length from Akeno’s disclosure. Thus, it is simply not possible to calculate a MRF for Akeno’s fastener elements from the information contained in the Akeno reference. Applicant respectfully submits that claim 61, and all claims that depend therefrom, are novel over Akeno.

(B) NO CLAIM IS OBVIOUS OVER AKENO, INCLUDING CLAIMS 5, 14, 24, 30, 45, 50, 60 AND 64.

⁷ 212 F.2d at 592.

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

Claims 5, 14 and 24 each depend from claim 1. Applicant has discovered that a G/A ratio of less than 0.6 provides fastener elements that are easier to de-mold from cavities of mold rolls, providing for improved manufacturability at a reduced cost. At the same time, Applicant has also found that fastener elements having such ratios provide for improved fastening performance when mating with, e.g., low loft loops, and also provide for enhanced product cycle life. For example, Applicant has found that each head of the fastener elements of claim 1 can demold without being substantially impeded by its neighboring head, which allows for each fastener element to return substantially to its nominal shape after demolding. Applicant has also found that when a load is applied to the fastener elements of claim 1 (such as by an engaged loop), the crook of each fastener element can bend open to release the loop without impeding the action of the neighboring crook. Akeno does not disclose or even suggest such a low ratio of G/A, nor does he hint at Applicant's solution. Rather, Akeno appears to overcome demolding difficulties by molding preforms with upwardly extending 'ears' that must be deformed in a secondary operation to form loop-engageable heads. Thus, there is nothing in the teaching of Akeno that would have led someone of ordinary skill in this art away from Akeno's own solution to this problem, and toward Applicant's claimed solution. Applicant respectfully submits that claims 5, 14 and 24 are each non-obvious over Akeno for at least the reason that they depend from a non-obvious base claim.

Claims 30 and 45 each depend from claim 27; and claims 50 and 60 each depend from claim 48. Applicant submits that the ratios J/G (overall height of the head to well height) greater than 0.7 (as specified by claim 27) and L/G (overall length of the fastener element to well height) greater than 2.5 (as specified by claim 48) are also not arbitrary, but in combination with features of respective base claims, can provide an improved fastener element. Akeno does not disclose or even suggest the claimed J/G or L/G ratios of claims 27 and 48, respectively, nor provides any guidance to one of ordinary skill that would have led to Applicant's solution. Applicant respectfully submits that claims 30 and 45 are each non-obvious over Akeno for at least the reason that they depend from a non-obvious base claim, as are claims 50 and 60.

Claim 64 depends from claim 61. Applicant discloses at page 14, lines 25-28 that "maintaining a low mold release factor, such as below 0.1, helps removing the molded fastener elements" and it also helps "prevent mold fouling and wear and decreases permanent distention

of the hook heads.” Akeno does not disclose or even suggest a mold release factor less than 0.1. Furthermore, there is no indication in Akeno that such a mold release factor helps in removing the molded fastener elements from cavities of mold rolls, e.g., to prevent mold fouling and wear, and decrease permanent distention of the hook heads. Applicant respectfully submits that claim 64 is non-obvious over Akeno for at least the reason that they depend from a non-obvious base claim.

(C) NO CLAIM IS OBVIOUS OVER AKENO IN VIEW OF ROMANKO, INCLUDING CLAIMS 24, 45 AND 60.

Claim 24 depends from claim 1; claim 45 depends from claim 27; and claim 60 depends from claim 48. The limitations of claims 1, 27 and 48 have been discussed above. Romanko generally describes a method of making discrete, spaced apart hooks by profile extruding hook-shaped rails, cutting the hook-shaped rails, and then stretching the cut rails to form discrete, spaced apart hooks. Romanko’s fastener elements do not even have “V” shaped cutout between the heads. Thus, claims 24, 45 and 60 are non-obvious for at least the reason that Romanko fails to provide the elements of the base claim missing from Akeno.

(D) NO CLAIM IS OBVIOUS OVER AKENO IN VIEW OF TAKIZAWA, INCLUDING CLAIMS 10 AND 35.

Claim 10 depends from claim 1; and claim 35 depends from claim 27, both of which have been described above. Takizawa does not disclose or even suggest a height (G) of a lowermost extent of the well that is less than 60 percent of an overall height (A) of the fastener element, as claim 1 requires, nor does he disclose or suggest a ratio of an overall height (J) of at least one of the heads to a height (G) of a lowermost extent of the well that is greater than 0.7, as claim 27 requires. In fact, Takizawa does not disclose even a single dimension for his fastener elements. Rather, Takizawa appears to be cited principally as disclosing fastener elements having tips extending toward the base. Applicant respectfully submits that claims 10 and 35 are non-obvious over the combination of Akeno and Takizawa for at least the reason that they depend from a non-obvious base claim.


CONCLUSION

Applicant submits that all of the above-discussed claim rejections are the result of an improper scaling of the drawings of Akeno and/or improper inferences about the location of the bottom of the "V" of Akeno's sketched fastener element. Applicant submits that this is clearly improper in view of established case law, and requests that the rejections be reversed.

Please apply any charges or credits to deposit account 06 1050, referencing Attorney Docket No. 05918-340001.

Respectfully submitted,

Date: 10/11/2006


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APPENDIX OF CLAIMS

1. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a stem extending outwardly from and integrally with the sheet-form base, and

two heads extending in essentially opposite directions in an engagement plane from a distal end of the stem to corresponding tips, each head having a lower surface forming a crook for retaining loops, the fastener element having an upper surface that defines a well between the heads;

wherein a height of a lowermost extent of the well, measured from and perpendicular to the sheet-form base, is less than 60 percent of an overall height of the fastener element, measured perpendicular to the sheet-form base.

2. The touch fastener component of claim 1 wherein the height of the lowermost extent of the well is at least about 70 percent of an overall height of one of the two oppositely-directed heads, measured perpendicular to the base from the tip of the head to an uppermost extent of the head.

3. The touch fastener component of claim 1 wherein each fastener element has an overall length between opposite extents of the heads, measured parallel to the base, of at least 1.8 times the overall height of the fastener element.

5. The touch fastener component of claim 1 wherein a ratio of an overall height of each crook, measured perpendicular to the sheet-form base from a lowermost extent of the corresponding tip

to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the corresponding tip, is greater than 0.6.

6. The touch fastener component of claim 1 wherein an overall height of one of the two oppositely-directed heads, measured perpendicular to the base from the tip of the head to an uppermost extent of the head, is less than 60 percent of the overall height of the fastener element.
7. The touch fastener component of claim 1 wherein a ratio of an overall length of the fastener element, measured parallel to the sheet-form base in the engagement plane, to the height of the lowermost extent of the well, is greater than 2.5.
8. The touch fastener component of claim 1 wherein each fastener element has a mold release factor, defined as a ratio of a difference between a minimum solid length of the stem, measured parallel to the sheet-form base in side view, and a maximum solid length of the fastener element, measured parallel to the sheet-form base in side view above an elevation corresponding to the minimum solid length, to the minimum solid length of the stem, of less than 0.1.
9. The touch fastener component of claim 1 wherein at least one of the heads has an overall height, measured perpendicular to the sheet-form base from a lowermost extent of the tip of the head to an uppermost extent of the head, that is greater than half of an overall height of the fastener element, measured perpendicular to the sheet-form base.

10. The touch fastener component of claim 1 wherein the tips extend toward the base.
11. The touch fastener component of claim 1 wherein the lower surfaces of the heads are arched.
12. The touch fastener component of claim 1 wherein the heads and stem form a unitary molded structure.
13. The touch fastener component of claim 1 wherein the heads have surfaces of resin cooled against mold surfaces.
14. The touch fastener component of claim 1 wherein the stem has opposing surfaces defined by severed resin.
15. The touch fastener component of claim 1 wherein the stem and heads have side surfaces lying in parallel planes.
16. The touch fastener component of claim 1 wherein the crooks overhang surfaces of the stem.
17. The touch fastener component of claim 16 wherein the crooks overhang stem surfaces that extend at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

24. The touch fastener component of claim 1 further comprising a backing material laminated to a side of the base opposite the fastener elements.

25. The touch fastener component of claim 1 wherein the fastener elements are arranged in a density of at least 350 fastener elements per square inch of the base.

26. The touch fastener component of claim 1 wherein the fastener elements together cover at least 20 percent of an overall surface area of the base from which the fastener elements extend.

27. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a stem extending outwardly from and integrally with the sheet-form base, and
two heads disposed at a distal end of the stem and extending in essentially opposite directions in an engagement plane to corresponding tips, each head having a lower surface forming a crook for retaining loops, the fastener element having an upper surface that defines a well between the heads;

wherein a ratio of an overall height of at least one of the heads, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the head, to a height of a lowermost extent of the well, measured from and perpendicular to the sheet-form base, is greater than 0.7.

28. The touch fastener component of claim 27 wherein each fastener element has an overall length between opposite extents of the heads, measured parallel to the base, of at least 1.8 times an overall height of the fastener element, measured from and perpendicular to the base.

30. The touch fastener component of claim 27 wherein a ratio of an overall height of each crook, measured perpendicular to the sheet-form base from a lowermost extent of the corresponding tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the corresponding tip, is greater than 0.6.

31. The touch fastener component of claim 27 wherein the overall height of one of the two oppositely-directed heads is less than 60 percent of an overall height of the fastener element, measured from and perpendicular to the base.

32. The touch fastener component of claim 27 wherein a ratio of an overall length of the fastener element, measured parallel to the sheet-form base in the engagement plane, to the height of the lowermost extent of the well, is greater than 2.5.

33. The touch fastener component of claim 27 wherein each fastener element has a mold release factor, defined as a ratio of a difference between a minimum solid length of the stem, measured parallel to the sheet-form base in side view, and a maximum solid length of the fastener element, measured parallel to the sheet-form base in side view above an elevation corresponding to the minimum solid length, to the minimum solid length of the stem, of less than 0.1.

34. The touch fastener component of claim 27 wherein at least one of the heads has an overall height that is greater than half of an overall height of the fastener element, measured from and perpendicular to the sheet-form base.

35. The touch fastener component of claim 27 wherein the tips extend toward the base.

36. The touch fastener component of claim 27 wherein the crooks overhang surfaces of the stem.

37. The touch fastener component of claim 36 wherein the crooks overhang stem surfaces that extend at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

45. The touch fastener component of claim 27 further comprising a backing material laminated to a side of the base opposite the fastener elements.

46. The touch fastener component of claim 27 wherein the fastener elements are arranged in a density of at least 350 fastener elements per square inch of the base.

47. The touch fastener component of claim 27 wherein the fastener elements together cover at least 20 percent of an overall surface area of the base from which the fastener elements extend.

48. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a stem extending outwardly from and integrally with the sheet-form base, and
two heads disposed at a distal end of the stem and extending in essentially opposite directions in an engagement plane to corresponding tips, each head having a lower surface forming a crook for retaining loops, the fastener element having an upper surface that defines a well between the heads;

wherein a ratio of an overall length of the fastener element, measured parallel to the sheet-form base in the engagement plane between opposite extents of the heads, to a height of a lowermost extent of the well, measured from and perpendicular to the sheet-form base, is greater than 2.5.

49. The touch fastener component of claim 48 wherein the overall length of the fastener element is at least 1.8 times an overall height of the fastener element, measured from and perpendicular to the base.

50. The touch fastener component of claim 48 wherein a ratio of an overall height of each crook, measured perpendicular to the sheet-form base from a lowermost extent of the corresponding tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the corresponding tip, is greater than 0.6.

51. The touch fastener component of claim 48 wherein an overall height of one of the two oppositely-directed heads, measured perpendicular to the base from the tip of the head to an uppermost extent of the head, is less than 60 percent of an overall height of the fastener element, measured from and perpendicular to the base.

52. The touch fastener component of claim 48 wherein each fastener element has a mold release factor, defined as a ratio of a difference between a minimum solid length of the stem, measured parallel to the sheet-form base in side view, and a maximum solid length of the fastener element, measured parallel to the sheet-form base in side view above an elevation corresponding to the minimum solid length, to the minimum solid length of the stem, of less than 0.1.

53. The touch fastener component of claim 48 wherein at least one of the heads has an overall height, measured perpendicular to the sheet-form base from a lowermost extent of the tip of the head to an uppermost extent of the head, that is greater than half of an overall height of the fastener element, measured perpendicular to the sheet-form base.

54. The touch fastener component of claim 48 wherein the crooks overhang surfaces of the stem.

55. The touch fastener component of claim 54 wherein the crooks overhang stem surfaces that extend at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

60. The touch fastener component of claim 48 further comprising a backing material laminated to a side of the base opposite the fastener elements.

61. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a molded stem extending outwardly from and integrally with the sheet-form base, and two heads disposed at a distal end of the stem and extending in essentially opposite directions in an engagement plane to corresponding tips, each head having a lower surface forming a crook for retaining loops, the fastener element having an upper surface that defines a well between the heads;

wherein each fastener element has a mold release factor, defined as a ratio of a difference between a minimum solid length of the stem, measured parallel to the sheet-form base in side view, and a maximum solid length of the fastener element, measured parallel to the sheet-form base in side view above an elevation corresponding to the minimum solid length, to the minimum solid length of the stem, of less than 0.1.

62. The touch fastener component of claim 61 wherein the mold release factor is less than 0.05.

63. The touch fastener component of claim 61 wherein the overall length of the fastener element is at least 1.8 times an overall height of the fastener element, measured from and perpendicular to the base.

64. The touch fastener component of claim 61 wherein a ratio of an overall height of each crook, measured perpendicular to the sheet-form base from a lowermost extent of the corresponding tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the corresponding tip, is greater than 0.6.

65. The touch fastener component of claim 61 wherein an overall height of one of the two oppositely-directed heads, measured perpendicular to the base from the tip of the head to an uppermost extent of the head, is less than 60 percent of an overall height of the fastener element, measured from and perpendicular to the base.

66. The touch fastener component of claim 61 wherein at least one of the heads has an overall height, measured perpendicular to the sheet-form base from a lowermost extent of the tip of the head to an uppermost extent of the head, that is greater than half of an overall height of the fastener element, measured perpendicular to the sheet-form base.

67. The touch fastener component of claim 61 wherein the crooks overhang surfaces of the stem.

68. The touch fastener component of claim 67 wherein the crooks overhang stem surfaces that extend at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

76. The touch fastener component of claim 1 wherein the height of the fastener element is measured at a molded upper surface of the fastener element.

77. The touch fastener component of claim 27 wherein the height of the fastener element is measured at a molded upper surface of the fastener element.

78. The touch fastener component of claim 48 wherein the height of the fastener element is measured at a molded upper surface of the fastener element.

79. The touch fastener component of claim 61 wherein the height of the fastener element is measured at a molded upper surface of the fastener element.

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EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 CFR §§ 1.130, 1.131 or 1.132, nor has any other evidence been entered by the Examiner and relied upon by the Appellant in the Appeal.

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RELATED PROCEEDINGS APPENDIX

There are no related proceedings.